Complete Summary

GUIDELINE TITLE

PET imaging in pancreatic cancer: recommendations.

BIBLIOGRAPHIC SOURCE(S)

Kanjeekal S, Biagi J, Walker-Dilks C. PET imaging in pancreatic cancer: recommendations. Toronto (ON): Cancer Care Ontario (CCO); 2009 Jan 19. 20 p. (Recommendation report - PET; no. 5). [34 references]

GUIDELINE STATUS

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COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

Pancreatic cancer

GUIDELINE CATEGORY

Diagnosis
Evaluation

Management
Technology Assessment

CLINICAL SPECIALTY

Gastroenterology
Nuclear Medicine
Oncology
Radiation Oncology
Radiology
Surgery

INTENDED USERS

Physicians

GUIDELINE OBJECTIVE(S)

To evaluate:

- What benefit to clinical management does positron emission tomography (PET) or positron emission tomography/computed tomography (PET/CT) contribute to the diagnosis or staging of pancreatic cancer?
- What benefit to clinical management does PET or PET/CT contribute to the assessment of treatment response for pancreatic cancer?
- What benefit to clinical management does PET or PET/CT contribute when recurrence of pancreatic cancer is suspected but not proven?
- What benefit to clinical management does PET or PET/CT contribute to restaging at the time of documented recurrence for pancreatic cancer?
- What is the role of PET when a solitary metastasis is identified at the time of recurrence and the metastasectomy is being contemplated?

TARGET POPULATION

Patients with pancreatic cancer

INTERVENTIONS AND PRACTICES CONSIDERED

1. Positron emission tomography (PET)
2. Positron emission tomography/computed tomography (PET/CT)

MAJOR OUTCOMES CONSIDERED

Sensitivity and specificity of positron emission tomography (PET) positron emission tomography/computed tomography (PET/CT)

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Hand-searches of Published Literature (Secondary Sources)

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

Systematic Review

A systematic review of the published literature was undertaken (see details below). This was conducted by two clinical lead authors, nominated by the Provincial Gastrointestinal Disease Site Group (GI DSG) and a Program in Evidence-Based Care (PEBC) methodologist. The systematic review served as the evidentiary foundation for a set of draft recommendations developed by this team.

Literature Search

The PEBC was aware of a technology assessment being produced by the University of Alberta Evidence-Based Practice Center for the U.S. Agency for Healthcare Research and Quality (AHRQ) evaluating the use of positron emission tomography (PET) imaging in nine cancers (referred to as the AHRQ review from this point forward). This review updated a previous AHRQ report produced by Duke University in 2004. The Alberta update included individual primary studies dating from 2003 to March 2008 on six of the 10 cancer sites targeted by this project. Because the AHRQ review sufficiently covered the questions and methodologies of interest to this recommendation report, a draft of the AHRQ review was made available to the PEBC and its results were used for the evidentiary base.

Study Selection Criteria

All primary studies in the AHRQ review that addressed the questions of interest in this recommendation report (diagnosis, staging, treatment response, recurrence, and restaging) were included.

The inclusion criteria for primary studies included in the AHRQ review were:

- Prospective or retrospective clinical study evaluated the use of fludeoxy-glucose (FDG) PET or FDG PET/computed tomography (CT) in primary cancer
- Study not duplicated or superseded by a later study with the same purpose from the same institution
- Study reported numeric data on at least one objective outcome of interest for the key questions of the technology assessment (diagnostic performance, treatment decisions and management strategy, changes in therapy, patient-centred outcomes, and economic outcomes)
- Study included ≥ 12 patients with the cancer of interest
- Study used a suitable reference standard (pathological confirmation and clinical follow-up) when appropriate

NUMBER OF SOURCE DOCUMENTS

The Agency for Healthcare Research and Quality (AHRQ) review results for pancreatic cancer included 17 primary studies.

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Expert Consensus (Committee)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Not applicable

METHODS USED TO ANALYZE THE EVIDENCE

Review of Published Meta-Analyses
Systematic Review with Evidence Tables

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

In some cases where sufficient evidence existed, meta-analyses were included with pooled likelihood ratios. The Agency for Healthcare Research and Quality (AHRQ) review included evidence tables that summarized the characteristics and results of each study according to the outcomes the study addressed. For diagnostic performance, the evidence tables recorded details on the source of the publication and the evidence grade, study design, patient characteristics, positron emission tomography (PET) technical characteristics, criteria for interpretation, and results. In addition to the diagnostic performance of PET, the AHRQ review also sought to evaluate PET in terms of its impact on physician decision-making approaches to diagnosis and management (referred to as diagnostic thinking) and its impact as part of a management strategy to improve patient-centred outcomes (referred to as management strategy). Full text and data extractions of the studies were provided to the clinical lead authors to aid in formulation of the recommendations. Telephone conferences and email correspondence between the clinical leads and the Program in Evidence-Based Care (PEBC) methodologist took place to clarify details and answer questions.

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

Consensus by the Provincial Gastrointestinal Disease Site Group (GI DSG)

The draft recommendations were refined during a DSG teleconference. The GI DSG is comprised of medical and radiation oncologists and surgeons and supported by a Program in Evidence-Based Care (PEBC) research methodologist.

Disease Site Group (DSG) Consensus Process

The clinical lead authors wrote summaries of the key evidence, draft recommendations, and qualifying statements for the questions pertaining to diagnosis/staging, assessment of treatment response, and recurrence/restaging.

The ensuing documents were circulated to all members of the GI DSG and discussed during a teleconference. The recommendations that were generated during this process are referred to below as the DRAFT DSG Recommendations. The intent of these recommendations was to guide discussion at the consensus meeting.

Provincial Positron Emission Tomography (PET) Imaging Consensus Meeting

The draft recommendations were vetted at a larger provincial PET imaging consensus meeting co-hosted by Cancer Care Ontario and the Provincial PET Steering Committee. The meeting was facilitated and supported by members of the PEBC team. Participants included representatives of the PEBC DSGs, other clinical experts in the areas of nuclear and diagnostic medicine, members of the Cancer Care Ontario clinical leadership team, and representatives from the Ontario PET Steering Committee and the Ontario Health Technology Assessment Committee.

Provincial Consensus Process

The consensus meeting on 25 November 2008 was conducted as follows:

- Presentations by each of the clinical lead authors on the DRAFT DSG recommendations and supporting evidence were made to the meeting participants.
- The recommendations were refined by the large group, and in some cases a revised recommendation was proposed, resulting in a FINAL recommendation.
- The participants voted on the FINAL recommendations to indicate their extent of agreement on a scale from 1 to 7 (1 indicating strong agreement, 5 indicating no agreement or disagreement, and 7 indicating strong disagreement).

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

Not stated

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Not stated

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Diagnosis/Staging

- Positron emission tomography (PET) is not recommended for primary diagnosis of pancreatic cancer.
- PET is recommended for staging if a patient is a candidate for potentially curative surgical resection as determined by conventional staging.

Assessment of Treatment Response

A recommendation cannot be made for or against the use of PET to guide clinical management based on assessment of treatment response due to insufficient evidence.

Recurrence/Restaging

PET is not recommended for clinical management of suspected recurrence, nor for restaging at the time of recurrence, due to insufficient evidence and lack of effective therapeutic options.

Solitary Metastasis Identified at Time of Recurrence

A recommendation cannot be made for or against the use of PET for staging if a solitary metastasis is identified at recurrence as there are no trials that identify the utility of PET scanning in this setting.

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

These recommendations are based on an evidentiary foundation consisting of one recent high-quality systematic review from the U.S. Agency for Healthcare Research and Quality (AHRQ) that included primary study literature for the period from 2003 to March 2008.

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Appropriate use of positron emission tomography in pancreatic cancer

Refer to the original guideline document for key evidence supporting the recommendations for use.

POTENTIAL HARMS

False positive and false negative results

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

Diagnosis/Staging

- The gold standard as well as the clinical goal is biopsy. When biopsy is inconclusive or not possible and the diagnosis remains in doubt, the evidence supports the use of positron emission tomography/computed tomography (PET/CT) where a positive result would lead to surgical resection for purposes of both diagnosis and treatment.
- Neuroendocrine tumours of the pancreas are known to be unreliably fludeoxy-glucose (FDG) avid.
- The clinical importance of change in treatment strategy as an outcome, despite a lack of strong evidence, is noted.

Assessment of Treatment Response

A recommendation for PET cannot be made in the setting of incomplete resection due to lack of evidence.

Recurrence/Restaging

Pancreatic cancer has high overall mortality, and recurrence is uniformly fatal. At this time, there are insufficient treatment options that improve the outlook in patients who recur after surgical resection that would allow PET to contribute to management. PET imaging in recurrent disease should be restricted to clinical trials.

Disclaimer

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IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Getting Better
Living with Illness

IOM DOMAIN

Effectiveness

IDENTIFYING INFORMATION AND AVAILABILITY

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ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2009 Jan 19

GUIDELINE DEVELOPER(S)

Program in Evidence-based Care - State/Local Government Agency [Non-U.S.]

GUIDELINE DEVELOPER COMMENT

The Program in Evidence-Based Care (PEBC) is a Province of Ontario initiative sponsored by Cancer Care Ontario and the Ontario Ministry of Health and Long-Term Care.

SOURCE(S) OF FUNDING

Cancer Care Ontario
Ontario Ministry of Health and Long-Term Care

GUIDELINE COMMITTEE

Gastrointestinal Disease Site Group

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

For a current list of past and present members, please see the Cancer Care Ontario Web site.

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

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GUIDELINE AVAILABILITY

Electronic copies: Available in Portable Document Format (PDF) from the Cancer Care Ontario Web site.

AVAILABILITY OF COMPANION DOCUMENTS

The following is available:

- Browman GP, Levine MN, Mohide EA, Hayward RSA, Pritchard KI, Gafni A, et al. The practice guidelines development cycle: a conceptual tool for practice guidelines development and implementation. J Clin Oncol 1995;13(2):502-12.

PATIENT RESOURCES

None available

NGC STATUS

This summary was completed by ECRI Institute on April 27, 2010.

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